

panthers 'treeing' their kill. A photograph appears with a note on the subject by Mr. Coleridge Beadon on p. 744, vol. xix. Eds.]

IV.—WILD DOGS ATTACKING CATTLE

Recently a pack of Wild Dogs attacked a herd of my cattle here, devoured four calves and half-killed a cow. This is the first instance I have ever known of Wild Dogs attacking grazing cattle: though they have killed cattle that have been tied up as baits for tiger last year and this year.

These cases prove the increasing boldness of these dogs. Their increase in numbers, and diminishing numbers of deer, which they are exterminating, are causing them to harm cattle. On top of this the rewards previously given for their destruction have been withdrawn.

ATTIKAN P. O.,
MYSORE,
March 2, 1927.

RANDOLPH C. MORRIS.

[The reason for the withdrawal by the Madras Government of the rewards paid for the destruction of wild dogs was, we understand, a matter of retrenchment. Whether the saving effected by this means is sufficient to justify Government's action is a matter for speculation.

The Nilgiri Game Association have however found it possible to recommence the payment of rewards for the destruction of these vermin and the keeping down of Wild Dogs within due limits is more or less assured in the area under its control. Europeans resident in other areas subjected to the depredations of these pests will do well to destroy wild dogs irrespective of whether rewards are paid for them or not. The most effective way of dealing with the wild dog is by destroying the litters. The jungle man mostly knows where the whelps are dropped but he likes the Wild Dog, who often provides him with food, and is reluctant to aid in its destruction, still by paying liberally for whelps it is possible to get a good number brought in provided that the jungle man has not to travel too far to claim his reward and provided he is certain of receiving payment in full. Europeans residing in a district infested by Wild Dogs might band themselves together to secure prompt and easy payment for the destruction of litters. Eds.]

V.—JACKALS IN RESIDENTIAL COMPOUNDS

Reference a note by Mr. C. M. Inglis on jackals in a compound. Two jackals inhabit the extensive compound of the bungalow I reside in, presumably a male and female, and are very tame, appearing during most hours of the day. I frequently see the male chasing the female in the manner described by Mr. Inglis.

The hair on the male's neck is erect but his tail stands straight up and does not curve over his back. I imagine it is the preliminary stage of courting.

One afternoon I saw a pie-bitch slink out of a patch of high grass followed by the male jackal, who, with bristling hair and bared teeth, made short runs at the dog hissing like a tom-cat. The jack never actually closed with the dog. In a short time the female jack came out of the grass and trotted off in another direction whereon the male left the pie-dog and followed her.

DALTONGANJ,
PALAMAN DISTRICT,
December 15, 1926.

RODNEY FOSTER,
Major.
No. 1 Party, Survey of India.

VI.—THE MATERNAL INSTINCT IN THE DWARF PIPISTRELLE, (*P. MIMUS MIMUS*)

Owing to the almost purely nocturnal habits and swift movements of bats, as an order, it is not often that the opportunity is presented to us and we are enabled to gain an insight into the more intimate life of any one of the species that we so often see flying around us in the dusk.

Such opportunities occasionally do occur, however, and as so little beyond the general outline is known of the habits of most of our Indian species, it seems worth while putting on record any new facts concerning their lesser known ways that may come to light; especially so when as in the present case, we meet with a phenomenon that we do not altogether understand,—I refer to the sense or 'instinct' that enabled the mother bat to discover her lost offspring.

One morning last month on returning to the bungalow after a morning spent on a Rubber estate, I was presented with a wee small bat—a very young Dwarf Pipistrelle, scarcely a quarter grown—alive but hardly yet able to crawl about freely. It had apparently fallen down from the roof outside the dining room windows from a colony of these bats, known to live in a hole beneath the eaves.

The young bat was placed in an ash tray on my writing table in the dining room to remain there until its fate should be decided upon and it could be disposed of.

In the evening, just as dusk fell and the lamps were lighted, forgetful of its presence, I sat writing at the table on which it lay, when I became aware of a bat fluttering round me and flitting about the rooms, an unusual occurrence calling for remark. After watching this bat for a few moments it became evident that my desk was the centre of attention and it then dawned upon me that, possibly there was the mother come for her lost offspring—the young bat reposing in the ash tray.

Keeping quite still therefore I watched intently the movements of both, the young one being within 18 inches of where I sat, and a few minutes later, after a number of abortive attempts and much fluttering of wings, the mother bat—for so she must have been—dropped and alighted upon the ash tray beside her young one, which with her aid immediately scrambled round until it could cling to her and be suckled from her nipples.

After a few moments of this, and after having moved it about until it was comfortably settled and attached to her, with a laboured flap or two the mother rose into the air again, carrying her young one with her, and disappeared out of the open window after circling round and round the room for several minutes.

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Curiously enough almost the same performance was repeated again a few weeks later with the difference that on this occasion there were several people present to witness it and the young one—a lively half-grown one this time—was put in a more easily accessible place. In this case, having returned late from Colombo, I noticed and remarked upon two bats flying round the room during dinner—to be told that a young bat had been found upon the floor and had been placed in a closed box to await my return.

Upon releasing the young bat which was well able to crawl but quite unable to fly, and placing it upon a book on a near-by table, one of the adult bats flew round and down towards it and after many attempts and much flying to and from eventually settled beside it and commenced to suckle it.

Seeing her engrossed thus, I switched on an electric torch and approached within a few feet, standing and watching while she suckled her young one which she continued to do for several minutes without taking the least notice of my close approach or of the strong light of the electric torch.

Eventually she too adjusted her young one and with it hanging to her breast launched herself off (with some difficulty, being much impeded by its weight) and disappeared out of the room into the night.

The foregoing would seem to indicate a degree of maternal affection unsuspected in this species of bat, the smallest in the Indian Empire. Not only has the mother bat sought out and discovered her straying offspring but she has ignored the close proximity of human beings and has continued to minister to its needs in spite of abnormal conditions.

I am however at a loss to understand how in both cases, the mother was able to discover the whereabouts of her young one. In the first case the young one was close beside me on my desk and I can vouch for it that it neither moved nor uttered any sound audible to human ears, until the mother alighted beside it and yet she appeared to know perfectly well where it was to be found although it had been on the desk since the morning and had been carried 10 or 15 feet from where it had been first discovered on the floor.

In the second case the whereabouts of the young bat were discovered by its mother while it was actually still shut up in a box, for when first seen she was circling over the table on which the box stood, and the table was some distance from where the young bat was picked up in the first instance.

In both these cases the mother would appear to have been guided to its offspring by some sense of which we are ignorant or else, alternatively, by a wonderfully developed sense of smell or hearing.

MATUGAMA CEYLON,
January 20, 1927.

W. W. A. PHILLIPS, F.Z.S., M.B.O.U.

[The sense of hearing is very acute in bats and they are believed to be able to 'take in' sounds not ordinarily perceptible to the human ear. In no mammals are the ears so developed or so variable in form as in bats; in most of the smaller insectivorous species they are longer than the head and in one species the length equals that of the whole head and body. In several families of insectivorous bats a process called the tragus, or inner ear, rises inside the anterior margin of the ear. The tragus in some species is so large that it extends nearly to the outer margin of the conch. The function of the tragus appears to be to intensify and prolong the waves of sound by producing undulations in them. Eds.]

VII.—NOTE ON THE DESERT GERBILLE (*CHELIONES HURRIANÆ*)

These pretty little animals which are desert dwellers, as their name implies, are commonly to be met with in places where the sand has consolidated, living in colonies in burrows. These burrows are usually deep and made in bunds and dunes, both far from and near cultivation. A common haunt of these gerbilles is the flats where *Salvadora persica*, a small tree, grows.

It is a common sight to see them out at all parts of the day, sitting at the mouth of the holes and performing their toilet duties both in winter and in the height of the hot weather.

They possess a luxuriant growth of whiskers and these glisten and reflect the sunlight as they are moved about. This part of the animal arrests one's attention first.

If approached quietly they will permit one to come within a few feet, but on the slightest alarm will all disappear into their holes. Now if one sits quietly in a bush, soon one head and then another will peep out and then pop in again. As soon as they realize the danger has passed they will all come out and the whole colony will again be quite active on the surface.

A peculiar drumming noise is made with the hind feet a very quick *tu tu tu tu*, etc., when the animal is alarmed or curious. This point I observed with specimens in captivity. Six specimens of this interesting animal were forwarded alive to the Society by Mr. Laird-MacGregor from Gujerat. Three of them died but the survivors are doing very well. Their chief diet was Jowari and paddy until one day I gave them grasshoppers by way of a change and found that they were eaten with great relish. They drink water freely. They are very fond of gnawing and have in consequence almost eaten through their cage. The arched tiles under which they live are not spared.

The burrowing habit is inherent in these animals and even in the cage they are shifting the sand about from one place to another. Often I fill up the tile and watch them burrow. The sand is removed to the rear with the forelegs and is from there kicked away in turn by the hind legs in a galloping motion, when the mouth of the tile is open the animal goes in and continues kicking the sand out until it makes its appearance on the other side. It now turns round and goes out by the same hole through which it went in and removes the sand again from the mouth of the tile. I have not observed them to make any noise beyond a faint squeaking sound when held up by their tail.

When handled they very rarely if ever bite.

BOMBAY,
April 12, 1927.

C. McCANN.